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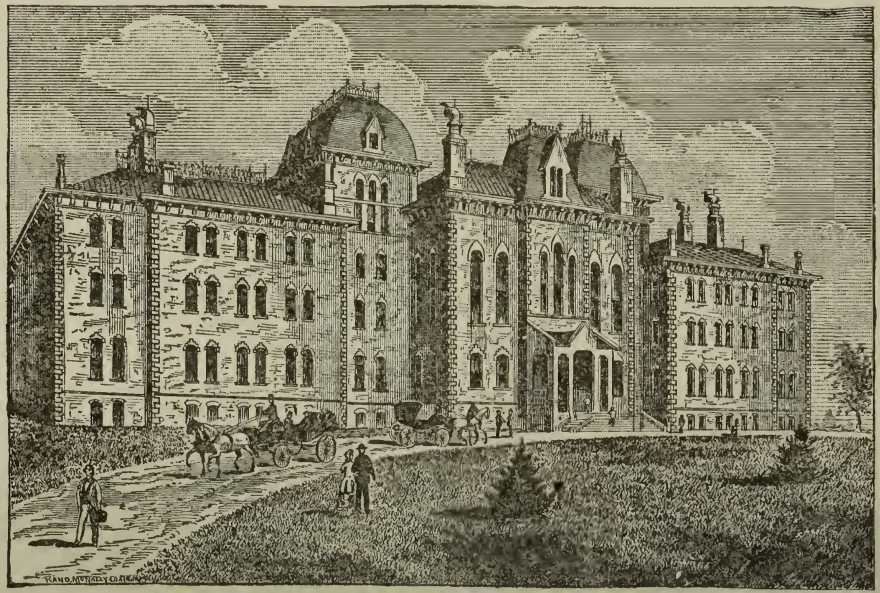
THE UNIVERSITY OF KANSAS.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

DEPARTMENT OF PHARMACY.

1885.

TOPEKA, KANSAS:
KANSAS PUBLISHING HOUSE: T. D. THACHER, STATE PRINTER.
1885.



UNIVERSITY OF KANSAS—Main Building.

THE UNIVERSITY OF KANSAS.

DEPARTMENT OF PHARMACY.

1885.

TOPEKA, KANSAS:
KANSAS PUBLISHING HOUSE: T. D. THACHER, STATE PRINTER.
1885.

FACULTY.

J. A. LIPPINCOTT, D. D.,
President.

LUCIUS E. SAYRE, PH. G.,
Professor of Pharmacy and of Materia Medica.

F. H. SNOW, PH. D.,
Professor of Botany.

D. H. ROBINSON, A. M.,
Professor of Latin.

E. H. S. BAILEY, PH. D.,
Professor of Chemistry.

E. L. NICHOLS, PH. D.,
Professor of Physics.

ORGANIZATION.

The Board of Regents, recognizing the obligation of THE UNIVERSITY to furnish the people of the State with every possible facility in educational lines, professional as well as collegiate, have frequently considered the question of the establishment of a School of Pharmacy. The calls for instruction in Pharmacy from young men of the State have been frequent and earnest. Not until the present time, however, have the means for securing so desirable an end been within reach. By act of the Legislature at its last session, 1885, provision was made and the duty of the Board indicated in the following:

"*Be it enacted by the Legislature of the State of Kansas,* That the Board of Regents of the State University be directed to establish, without delay, a chair of Pharmacy in said institution."

In accordance with this action of the Legislature, the Board of Regents at its June meeting elected LUCIUS E. SAYRE, Ph. G., of Philadelphia, a practical druggist and an experienced instructor, late Professor of Pharmacy in the Women's Medical College, and Instructor in Materia Medica in the Philadelphia College of Pharmacy, and author of Organic Materia Medica and Pharmacal Botany, as Professor of Pharmacy, and ordered the organization of the department at the opening of the fall term, September 9th, 1885.

TERMS OF ADMISSION.

The candidate should be at least sixteen years of age, and must pass a satisfactory examination in the following studies:

1. Arithmetic.
2. Algebra, through Quadratics, including Arithmetical and Geometrical Progression.
3. History of the United States.
4. Geography, Descriptive and Physical.
5. English Grammar and Composition.
6. Constitution of the United States.

ADMISSION BY CERTIFICATE.

Graduates of *accredited High Schools* of the State are admitted without examination, on presentation of diploma, or of an official certificate of such graduation. Principals of private schools and academies, and of the public High and Grammar Schools of the State, whose work is known and acceptable to the Faculty of the University, may by correspondence with the Chancellor arrange for *home examinations* upon the subjects (or any of them) which are required for admission to the School of Pharmacy. These home examinations may also include any of the studies of the sub-Freshman class.

Blank forms for certificates of admission will be furnished such teachers as desire them. In all cases arrangements should be made in advance, and the certificates must be approved by the Professor in charge of the subjects covered by them. A *partial* certificate will be received, but in such cases the student must pass the usual examinations upon the subjects not included in the certificate.

In all cases, if the first term's work in the University develop the fact that the student's preparation has been imperfect, the right of the professor in charge is reserved to require further and satisfactory examination.

COURSE OF STUDY.

JUNIOR PHARMACISTS.

FIRST TERM.

Materia Medica—Two-fifths term.*
Pharmacy—Three-fifths term.*
Natural Philosophy.
Latin.

SECOND TERM.

Materia Medica.
Chemistry—Half-term.
Botany.
Laboratory Practice in Pharmacy.

SENIOR PHARMACISTS.

FIRST TERM.

Pharmacy and Laboratory Practice.
Qualitative Analysis—Half-term.
Physiology—Half-term.
Laboratory Practice in Physiological Chemistry.

SECOND TERM.

Materia Medica—Half-term.
Organic Chemistry—Half-term.
Toxicology—Half-term.
Microscopy—Half-term.
Laboratory Practice in Pharmacy.

*In this connection two-fifths term means two recitations per week; three-fifths term, three recitations per week, etc. Half-term studies are either continued through the term on alternate days, or daily through the half-term. Daily recitations throughout the term are intended when not otherwise specified.

PHARMACY.

JUNIOR COURSE.

The instruction to junior students in practical pharmacy and pharmaceutical chemistry will consist of lectures and laboratory practice. The course will be based upon the United States Pharmacopœia. A comparison of this standard with the pharmacopœias used in different countries will at the outset be made, followed by a few lectures preparatory to actual laboratory work and dispensing. The study of different systems of weights and measures in use in different countries will receive due attention, as well as specific gravity. The operations in pharmacy will then be divided in such a manner as to form a graded course of study. The simplest treatment to which the drug is subjected during the process of preparation for manipulation, dispensing and administration will be first considered. For example: The process of pulverization, the methods of grinding, powdering and sifting, both in the ordinary operations of the store and those of the manufacturers on a large scale. Subsequently, by successive steps, will be taken up the higher forms of pharmaceutical work, such as solution, decantation, elutriation, filtration. Next in order will follow such processes as maceration, infusion, percolation. Subsequently, processes requiring heat, such as evaporation, distillation, sublimation. Finally, precipitation, crystallization, and granulation. The latter part of the course will be devoted to the consideration of inorganic substances used in medicine. These will be classified according to their chemical relations, as follows: The elementary substances, such as chlorine, bromine, and iodine; the alkalies and alkaline earths; and finally, the salts of the metals, such as iron, zinc, lead, mercury, etc. The presentation of this portion of the course

will be limited to the pharmaceutical bearings of these substances entirely, referring at the same time, without needless repetition, to the knowledge gained in the lectures upon general chemistry. Such pharmaceutical preparations will be studied in the course as will require no great amount of chemical skill in their preparation, and the practical work in the laboratory will have a like limitation. Phyto-chemistry, or plant analysis, and the higher forms of pharmaceutical chemistry, will be merely referred to as a preparation for the senior course.

SENIOR COURSE.

The lectures to senior students in pharmacy will be devoted more particularly to pharmaceutical chemistry; a review of the important features of the junior course will be rehearsed at the opening of the course. The subsequent lectures will embrace a study of the pharmacopœial preparations from a more scientific point of view. They will be classified in such a manner as will enable the student to study the chemical constituents of each drug, and will bring out the bearing these have upon the manufacture of medicinal preparations. Each drug and its preparations will be considered individually, but they will be so grouped that a graded study of a pharmaceutical nature will be introduced: thus those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other. Subsequently the organic substances obtained from the animal kingdom will be considered. Following this, a review of the pharmacopœia in the important methods of manufacture and examination of inorganic chemicals will be made, and a consideration of the methods of assaying and plant analysis.

While the drugs and preparations of the U. S. P. will claim principal place as the more important, due attention will be paid to non-officinal materia medica.

MATERIA MEDICA.

JUNIOR COURSE.

As an introduction to materia medica (pharmacognosy), the beginning of the course will comprise lectures upon structural and physiological botany. The department of materia medica will embrace the animal and vegetable drugs (the latter classified according to their botanical relations); their geographical origin, commercial sources, historical points of interest and therapeutic uses will be prominently brought out. The characteristics of each drug will be pointed out preparatory to the senior course; some prominence will be given to this, although the subject will not be dwelt upon, only so far as prominent external features are concerned.

SENIOR COURSE.

The lectures to senior students in this department will be devoted more specially to the physical and structural characteristics of drugs. A classification will be made which will be best fitted for the purpose; thus the roots and underground stems will be among the first presented—these to be subdivided according to their relations as to special physical properties: those of a more cellular structure being placed in the one class, those of a fibrous and woody character in another. These, with intermediate forms being so subdivided and arranged that their characteristics will be closely studied. Adulterations will receive due consideration. The chemical constituents and the nature of same will also be presented. The subject of pharmaco-dynamics, including the antidotes for such vegetable substances as possess poisonous properties, will receive due attention. Great pains will be taken that the student be most thoroughly familiar with the officinal and important drugs, and that their recognition will be instantaneous and reliable.

MISCELLANEOUS INFORMATION.

RECITATIONS.

Students in Pharmacy will recite with collegiate classes in Botany, Physics, Chemistry and other subjects which are common to the two departments. Recitations and lectures occupy the morning hours, from 9 A. M. to 1 P. M. Laboratory practice, Qualitative and Blow-pipe Analysis, Microscopy, etc., will, for the most part, be assigned to the afternoon.

REQUIREMENTS FOR GRADUATION.

The degree of Ph. G. (Graduate in Pharmacy) will be given to such students as complete the above course and pass a satisfactory examination upon the same in accordance with the law establishing the department: *Provided*, That no degree shall be conferred until the candidate presents satisfactory testimonials showing that he has had two years of *practical experience* in Pharmacy. This *apprenticeship* must be had in the actual drug business, and may either *precede* or *follow* the course of study prescribed in the University. It is, however, recommended as in every way more desirable, that the practical work herein required shall precede the theoretical work of the class room and of the University laboratory.

FEES.

A contingent fee of ten dollars per annum or five dollars per term is required of *all* students of the University. In addition to this, members of the class in Pharmacy are required to pay fifteen dollars per annum or seven and a half dollars per term.

A charge of five dollars is made for the diploma. A deposit of from three to eight dollars per term is required to cover loss and breakage in the Laboratories. At the end of each term all

the material returned in good order will be credited to the student, and any balance remaining will be refunded.

Students in Pharmacy will have the privileges of the University library, and of the various collections in Zoölogy and Botany, and all advantages possessed by other students in the University.

Board in families, including rooms, light and fuel, is furnished at an average cost of $4 per week. Some persons who furnish plain rooms, and good plain food, receive boarders at $3.50 or even $3 per week. Students who require extra accommodations pay higher rates. Day board in private families costs about $3 per week.

Day board in clubs varies according to the economy practiced, from $1.50 to $2.25 per week. On this plan a company of students appoint a steward or a committee to arrange terms with a competent housekeeper, to buy provisions as needed, to keep a list of rooms for rent in the vicinity, and to collect from the membership the estimated cost in advance for each week. These students generally furnish their own rooms, and provide lights, fuel, etc. An unfurnished room rents for about $2 per month.

Information will be promptly given upon any point that may have escaped attention in the preparation of the present circular. Address, the Chancellor of the University,

REV. J. A. LIPPINCOTT,
LAWRENCE, KANSAS.

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THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE UNIVERSITY OF KANSAS.

CATALOGUE

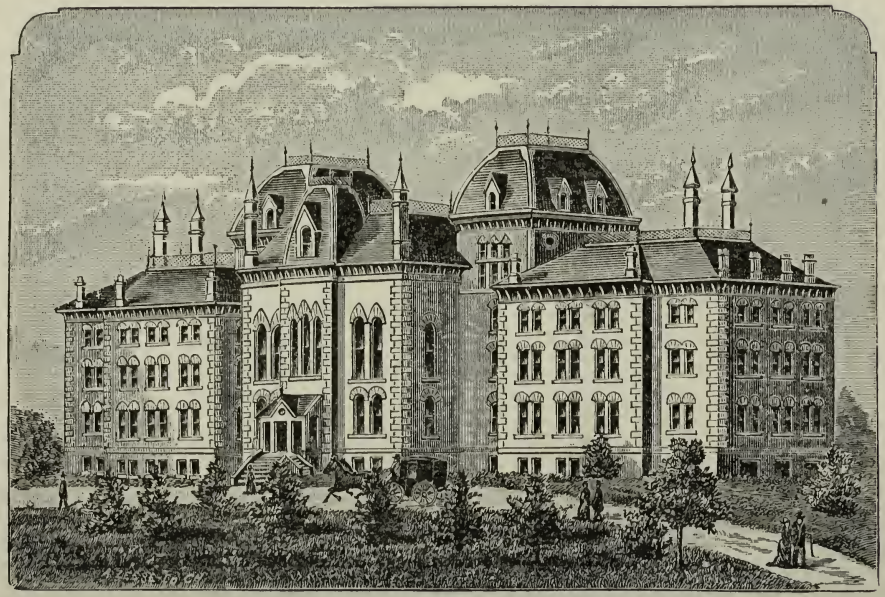
OF THE

DEPARTMENT OF PHARMACY,

FOR THE COLLEGIATE YEAR

1885-6.

TOPEKA:
KANSAS PUBLISHING HOUSE: T. D. THACHER, STATE PRINTER.
1886.



UNIVERSITY OF KANSAS—MAIN BUILDING.

The University of Kansas.

CATALOGUE

OF THE

DEPARTMENT OF PHARMACY,

FOR THE COLLEGIATE YEAR

1885-6.

TOPEKA:
KANSAS PUBLISHING HOUSE: T. D. THACHER, STATE PRINTER.
1886.

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ANNOUNCEMENTS FOR 1886-7.

The regular annual meeting of the Board of Regents is held on the second Tuesday of April; the semi-annual meeting on the third Tuesday of November.

1886.

Sept. 8, Wednesday — First term begins.

Sept. 8 and 9, Wednesday and Thursday — Examination and classification of candidates for admission.

Sept. 10, Friday — General assembly of students in University Hall at 9 o'clock A. M.

Nov. 11, Thursday — Second half-term begins.

Nov. —, Thursday and Friday — Thanksgiving holidays.

(CHRISTMAS RECESS OF TWO WEEKS, BEGINNING WEDNESDAY, DEC. 22.)

1887.

Jan. 25 to 28, Tuesday to Friday, inclusive — Semi-annual Examinations.

Jan. 27, Thursday — Second term begins.

March 30, Wednesday — Second half-term begins.

May 25 to June 2 — Monday to Thursday, inclusive — Annual Examinations.

June 5, Sunday, 8 P. M. — Baccalaureate Sermon.

June 8, Wednesday, 10 A. M. — Commencement.

(SUMMER VACATION OF THIRTEEN WEEKS.)

ORGANIZATION.

By act of the Legislature at the session of 1885, it was pro vided as follows:

"*Be it enacted by the Legislature of the State of Kansas*, That the Board of Regents of the State University be directed to establish, without delay, a chair of Pharmacy in said institution."

It was further enacted at the same session of the Legislature that—

"The Board of Regents of the State University shall appoint five registered pharmacists, who shall hold office for the term of four years, to conduct the examination of all graduates in pharmacy, and sign the certificates of graduation."

In accordance with this action of the Legislature, the Board of Regents, at its meeting in June, 1885, elected Lucius E. Sayre, Ph. G., of Philadelphia, a practical druggist and an experienced instructor, late Professor of Pharmacy in the Woman's Medical College, and Instructor in Materia Medica in the Philadelphia College of Pharmacy, and author of "Organic Materia Medica and Pharmacal Botany," as Professor of Pharmacy, and ordered the organization of the department at the beginning of the fall term, September 9th, 1885. At a subsequent meeting, the Board of Examiners in Pharmacy was appointed. The names of the members of this Board will be found on another page.

THE UNIVERSITY OF KANSAS.

DEPARTMENT OF PHARMACY.

BOARD OF REGENTS.

Hon. A. G. OTIS	Atchison	Term expires,	1889
Hon. M. P. SIMPSON	McPherson	" "	1889
Prof. F. A. FITZPATRICK	Leavenworth	" "	1888
Hon. C. W. SMITH	Stockton	" "	1888
Hon. GEORGE R. PECK	Topeka	" "	1887
Hon. C. R. MITCHELL	Geuda Springs	" "	1887

Rev. J. A. LIPPINCOTT, D. D., *Chancellor;* ex-officio member of the Board.

OFFICERS OF THE BOARD.

J. A. LIPPINCOTT.....*President*, ex-officio.
GEORGE R. PECK.....*Vice President.*
F. A. FITZPATRICK.....*Secretary.*
W. F. MARCH.....*Treasurer.*
C. R. MITCHELL.....*Auditor.*
Prof. E. MILLER.....*Librarian.*
W. J. HAUGHAWOUT.....*General Agent for University Lands.*
E. C. LITTLE.....*Clerk and Book-keeper.*
W. J. PARRISH.....*Supt. of Buildings and Grounds.*

BOARD OF EXAMINERS IN PHARMACY.

R. J. BROWN, Leavenworth. B. W. ALDRICH, Wichita.
ARTHUR E. BARNES, Topeka. GEORGE LEIS, Lawrence.
WILLIAM C. McPIKE, Atchison.

OFFICERS OF THE BOARD.

R. J. BROWN, *President.*
ARTHUR E. BARNES, *Secretary.*

FACULTY.

J. A. LIPPINCOTT, D. D., PRESIDENT.

LUCIUS E. SAYRE, PH. G.,
Dean and Professor of Pharmacy, and Materia Medica.

FRANK H. SNOW, Ph. D.,
Professor of Botany.

DAVID H. ROBINSON, A. M.,
Professor of Latin.

EDGAR H. S. BAILEY, Ph. D.,
Professor of Chemistry.

EDWARD L. NICHOLS, Ph. D.,
Professor of Physics.

STUDENTS.

SENIOR CLASS.

NAME.	RESIDENCE.
Fox, Edward Bayless,	*Highland.*
Raymond, Harry Legate,	*Lawrence.*
Wyler, Carl Lewis,	*Lawrence.*

Seniors, 3.

JUNIOR CLASS.

Applebaugh, Henry Percy,	*Minneapolis.*
Deford, John Henry,	*Ottawa.*
Dick, William Scott,	*Lawrence.*
Fisher, John Allin,	*White City.*
Griffith, James Ellsworth,	*Eureka.*
Hoadley, Clarence Remson,	*Lawrence.*
Kirby, John Clay,	*Newton.*

NAME.	RESIDENCE.
Lindley, Corydon Endsley,	*Lawrence.*
Lindsay, Samuel Watson,	*Garnett.*
Lyman, William Lincoln,	*Cherryvale.*
McBride, William Ferguson,	*Lawrence.*
O'Donnell, Martin,	*Wetmore.*
Roberds, Silvams Lewis,	*Hutchinson.*
Rushmer, Henry Frazer,	*Lawrence.*
Sexton, Charles Loyal,	*Lawrence.*
Sexton, John,	*Augusta.*
Smith, Andrew Jackson,	*Summit.*
Smith, Glen Armstrong,	*Frankfort.*
Wood, Thomas Herbert,	*Lawrence.*
Wulfekühler, Albert Frederic,	*Leavenworth.*

Juniors, 20.

DEPARTMENT OF PHARMACY.

TERMS OF ADMISSION.

The candidate should be at least sixteen years of age, and must pass a satisfactory examination in the following studies:

1. Arithmetic.
2. History of the United States.
3. Geography, Descriptive and Physical.
4. English Grammar and Composition.
5. Constitution of the United States.*

ADMISSION BY CERTIFICATE.

Graduates of *accredited High Schools* of the State are admitted without examination, on presentation of diploma, or of an official certificate of such graduation. Principals of private schools and academies, and of the public High and Grammar Schools of the State, whose work is known and acceptable to the Faculty of the University, may by correspondence with the Chancellor arrange for *home examinations* upon the subjects (or any of them) which are required for admission to the School of Pharmacy. These home examinations may also include any of the studies of the sub-Freshman class in Collegiate courses.

Blank forms for certificates of admission will be furnished such teachers as desire them. In all cases arrangements should be made in advance, and the certificates must be approved by the Professor in charge of the subjects covered by them. A *partial* certificate will be received, but in such cases the student must pass the usual examinations upon the subjects not included in the certificate.

*A knowledge of Algebra and Geometry is also *recommended*. The student of Pharmacy who lacks a thorough mastery of elementary branches labors under serious disadvantages. Students of Pharmacy will be admitted, without additional charge, to any of the sub-Freshman or Collegiate classes.

In all cases, if the first term's work in the University develop the fact that the student's preparation has been imperfect, the right of the professor in charge is reserved to require further and satisfactory examination.

COURSE OF STUDY.

JUNIOR PHARMACISTS.

FIRST TERM.

Materia Medica, two-fifths term.
Pharmacy, three-fifths term.
Natural Philosophy.
Latin.
Elementary Chemical Philosophy, one-fifth term.

SECOND TERM.

Materia Medica.
Chemistry, half-term.
Botany.
Laboratory Practice in Pharmacy.
Crystallography, half-term.

SENIOR PHARMACISTS.

FIRST TERM.

Pharmacy and Laboratory Practice.
Qualitative Analysis, half-term.
Physiology, half-term.
Laboratory Practice in Physiological Chemistry.
Volumetric Analysis and Gravimetric Analysis, half-term.
Structural Botany.

SECOND TERM.

Materia Medica, half-term.
Organic Chemistry, half-term.
Toxicology, half-term.
Microscopy, half-term.
Laboratory Practice in Pharmacy.
Preparation of Thesis.

PHARMACY.

JUNIOR COURSE.

The instruction to Junior students in practical pharmacy and pharmaceutical chemistry consists of lectures and laboratory practice. The course is based upon the United States Pharmacopœia. A comparison of this standard with the pharmacopœias used in different countries is made, followed by a few lectures preparatory to actual laboratory work and dispensing. The study of specific gravity and of different systems of weights and measures receives attention. The operations in pharmacy are then divided in such a manner as to form a graded course of study. The simplest treatment to which the drug is subjected during the process of preparation for manipulation, dispensing and administration is first considered. For example: The process of pulverization, the methods of grinding, powdering and sifting, are given, both in the ordinary operations of the store and in those of the manufacturer on a large scale. Subsequently, by successive steps, are taken up the higher forms of pharmaceutical work, such as solution, decantation, elutriation, filtration. Next in order follow such processes as maceration, infusion, percolation; subsequently processes requiring heat, such as evaporation, distillation, and sublimation. Finally, precipitation, crystallization, and granulation. The latter part of the course is devoted to the consideration of inorganic substances used in medicine. These are classified according to their chemical relations, as follows: The elementary substances, such as chlorine, bromine, and iodine; the alkalies and alkaline earths; and finally, the salts of the metals, such as iron, zinc, lead, mercury, etc. The presentation of this portion of the course is limited to the pharmaceutical bearings of these substances entirely, referring at the same time, without needless repetition, to the knowledge gained in the lectures upon

general chemistry. Such pharmaceutical preparations are studied in the course as require no great amount of chemical skill in their preparation, and the practical skill in the laboratory has a like limitation. Prescription reading and compounding are also studied from original prescriptions of different physicians from various parts of the United States. Three thousand of such prescriptions are now on hand in the department, and others will be added from time to time. The advantage of such practice under competent instruction must at once be apparent. Phyto-chemistry, or plant analysis, and the higher forms of pharmaceutical chemistry, are merely referred to as a preparation for the Senior course.

SENIOR COURSE.

A review of the important features of the Junior course is rehearsed at the opening of the term, followed by lectures devoted more particularly to pharmaceutical chemistry. The subsequent lectures embrace a study of the pharmacopœial preparations from a more scientific point of view. These are classified in such a manner as will enable the student to study the chemical constituents of each drug, and bring out the bearing these have upon the manufacture of medicinal preparations. Each drug is considered individually, but drugs and their preparations are so grouped as to introduce a graded study of a pharmaceutical nature. For instance, those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other. Subsequently the organic substances obtained from the animal kingdom are considered. Following this, a review is made of the pharmacopœia in the important methods of manufacture and examination of inorganic chemicals, and a consideration of the methods of assaying and plant analysis.

While the drugs and preparations of the U. S. P. claim principal place as the more important, due attention is paid to non-officinal materia medica.

MATERIA MEDICA.

JUNIOR COURSE.

As an introduction to materia medica (pharmacognosy), the beginning of the course comprises lectures upon structural and physiological botany. The department of materia medica embraces the animal and vegetable drugs (the latter classified according to their botanical relations); their geographical origin, commercial sources, historical points of interest and therapeutic uses. The characteristics of each drug are pointed out preparatory to the Senior course.

SENIOR COURSE.

The lectures to Senior students in this department are devoted more specially to the physical and structural characteristics of drugs. The classification adopted presents, first, the roots and underground stems. These are subdivided according to their relations as to special physical properties; those of a more cellular structure being placed in the one class, those of a fibrous and woody character in another. These, with intermediate forms, are so subdivided and arranged that their characteristics may be more readily studied. Adulterations receive due consideration. The subject of pharmaco-dynamics, including the antidotes for such vegetable substances as possess poisonous properties, is presented. No effort is spared to make the student so familiar with the officinal and important drugs, that his recognition of them will be instantaneous and reliable.

CHEMISTRY.

In the first term of the Junior course the *elements* of the science are taught, in order to familiarize the student with definitions, chemical formulæ, reactions, and the simpler chemical manipulations. Later in the year there is a course in *General*

Chemistry, including the preparation, properties and uses of the non-metallic and of the metallic elements. Considerable time is also devoted to a discussion of the most important compounds in use in the arts and in medicine.

During the Senior year a course in *Qualitative Analysis* is provided, in which the student, by actual work in the laboratory, is enabled to become proficient in the analysis of all ordinary substances. Subsequently three months are devoted to *Organic Chemistry,* and considerable time to *Toxicology.* In the latter study practical exercises are given, so that the facts of the text-books can be verified by actual experiment upon living and dead animals.

BOTANY.

The instruction in Botany is the same as that given to Freshmen and Sophomores in the collegiate department. Six weeks are devoted to the study of a text-book, for the purpose of gaining an acquaintance with the elementary principles of the science, including the necessary botanical nomenclature. Twelve weeks are then devoted to laboratory work, in which the student gives his chief attention to the wild phænogamous plants of the surrounding region. Accuracy of observation and skill in description are thus acquired, making the correct classification of plants a comparatively easy undertaking. In connection with this part of the work, each student is required to prepare a small herbarium of at least forty species of plants, special prominence being given to the medicinal species.

In the second year, a half-term of ten weeks is devoted to advanced work in structural botany. By means of the compound microscope the student is made acquainted with the internal structure of plants of all orders.

PHYSICS.

The course in Physics includes daily work for twenty weeks of the Junior year. The method of instruction includes lectures and recitations, experimental demonstrations by the instructor, and laboratory practice. Each member of the class is expected to perform the more important experiments for himself, and to become familiar with the principal elementary operations. Especial attention is paid to volumetric and gravimetric measurements; to the comparison of thermometers; to the construction and use of the hydrometer, spectroscope, polariscope and microscope; and to determinations of density; of melting and boiling points; and of such other physical properties as are most useful to the pharmacist. Recent liberal legislative appropriations have furnished the Department of Physics with a very complete set of apparatus for demonstration and operations of precision.

During the Spring term a practical eight-weeks course in Crystallography is offered to the Junior class in Pharmacy.

MISCELLANEOUS INFORMATION.

RECITATIONS.

Students in Pharmacy will recite with collegiate classes in Botany, Physics, Chemistry and other subjects which are common to the two departments. Recitations and lectures occupy the morning hours, from 9 A. M. to 1 P. M. Laboratory practice, Qualitative and Blow-pipe Analysis, Microscopy, etc., will, for the most part, be assigned to the afternoon.

REQUIREMENTS FOR GRADUATION.

The degree of Ph. G. (Graduate in Pharmacy) will be given to such students (at least 21 years of age) as complete the above course and pass a satisfactory examination upon the same in

accordance with the law establishing the department: *Provided*, That no degree shall be conferred until the candidate presents satisfactory testimonials showing that he has had two years of *practical experience* in Pharmacy. This *apprenticeship* must be had in the actual drug business, and may either *precede* or *follow* the course of study prescribed in the University. It is, however, recommended as in every way more desirable, that the practical work herein required shall precede the theoretical work of the class-room and of the University laboratory.

EXAMINATIONS.

Examinations will be held at the end of each term, upon the work of that term. These term examinations are held by the Faculty, and are generally written. At the end of the course, examinations will be held by the Faculty in connection with the State Board of Examiners in Pharmacy, in such manner as may hereafter be prescribed.

FEES.

A contingent fee of ten dollars per annum or five dollars per term is required of *all* students of the University. In addition to this, members of the class in Pharmacy are required to pay fifteen dollars per annum or seven and a half dollars per term.

A charge of five dollars is made for the diploma. A deposit of from three to eight dollars per term is required to cover loss and breakage in laboratories. At the end of each term all the material returned in good order will be credited to the student, and any balance remaining will be refunded.

Students in Pharmacy will have the privileges of the University library, and of the various collections in Zoölogy and Botany, and all advantages possessed by other students of the University.

EXPENSES.

Board in families, including rooms, lights and fuel, is furnished at an average cost of $4 per week. Some persons who furnish plain rooms, and good plain food, receive boarders at $3.50 or

even $3 per week. Students who require extra accommodations pay higher rates. Day board in private families costs about $3 per week.

Day board in clubs varies according to the economy practiced, from $1.50 to $2.25 per week. On this plan, a company of students appoint a steward or a committee to arrange terms with a competent housekeeper, to buy provisions as needed, to keep a list of rooms for rent in the vicinity, and to collect from the membership the estimated cost in advance for each week. These students generally furnish their own rooms, and provide lights, fuel, etc. An unfurnished room rents for about $2 per month; furnished room, for from $5 to $10 per month.

Any further information will be freely given on application. Address the Dean of the Department, or the Chancellor of the University, J. A. Lippincott, Lawrence, Kansas.

PREPARATORY MEDICAL COURSE.

The charter of the University authorizes and requires the establishment of a Department of Medicine. It is hoped that this may be accomplished in the near future. As leading to it, a course of studies nearly related to the departments of Pharmacy, Chemistry, and Natural History, and including Materia Medica, Human Physiology, Comparative Anatomy (dissections), &c., has been arranged. This course is accepted by all the leading medical colleges of the West as the first year of a three-years course, and students passing a satisfactory examination here will be admitted to the second year in those colleges, on certificate of the Faculty of this University.

A metallurgical cabinet, a pharmaceutical collection constantly increasing, a suite of specimens illustrative of chemistry applied to the arts, and a collection of manufactured chemicals, afford excellent facilities for practical study in this department.

ADMISSION.

It is earnestly recommended that in all cases the professional studies be taken up *after* graduation from the Department of Science, Literature and the Arts. Students, however, will be admitted to the Preparatory Medical Course who are ready for admission to the Freshman class in all English studies.

COURSE OF STUDIES.

FIRST TERM.

Chemistry—Lectures and Recitations daily.
Laboratory Practice in Analytical Chemistry.
Human Physiology—Lectures daily, half-term.
Comparative Anatomy (dissections, etc.), half-term.

SECOND TERM.

Chemistry—Lectures and Recitations.
Botany—Recitations and Laboratory Practice, daily.
Physiological Chemistry—Recitations and Laboratory Practice.
Toxicology, half-term.
Materia Medica—Recitations and Lectures, with Laboratory Practice in the compounding of drugs.

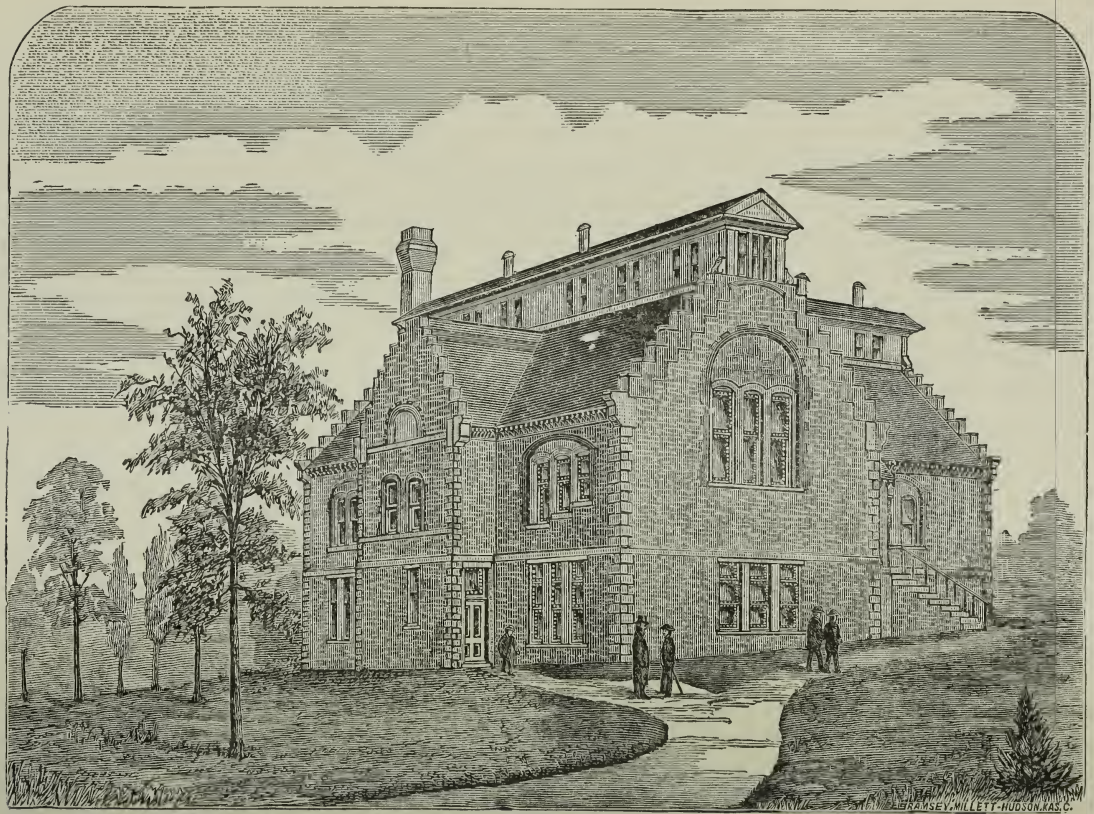
SCHEDULE OF RECITATION HOURS FOR 1886-7.

JUNIOR COURSE.

	9–10	10–11	11–12	12–1	2–5 P. M.
FIRST TERM.....	Elementary Chemical Philosophy.	Natural Philosophy.	Pharmacy. Materia Medica.	Latin.	Laboratory Practice.
SECOND TERM.....	Laboratory Practice in Pharmacy.	Crystallography (*a*). Chemistry (*b*).	Botany.	Materia Medica.	Laboratory Practice.

SENIOR COURSE.

FIRST TERM.....	Pharmacy.	Structural Botany (*a*). Qualitative Analysis (*b*).	Physiological Chemistry.	Physiology (*b*).	Laboratory Practice.
SECOND TERM.....	Materia Medica.	Microscopy.	Laboratory Practice in Pharmacy.	Organic Chemistry (*a*). Toxicology (*b*).	Laboratory Practice.



CHEMICAL BUILDING—THE UNIVERSITY OF KANSAS.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE UNIVERSITY OF KANSAS.

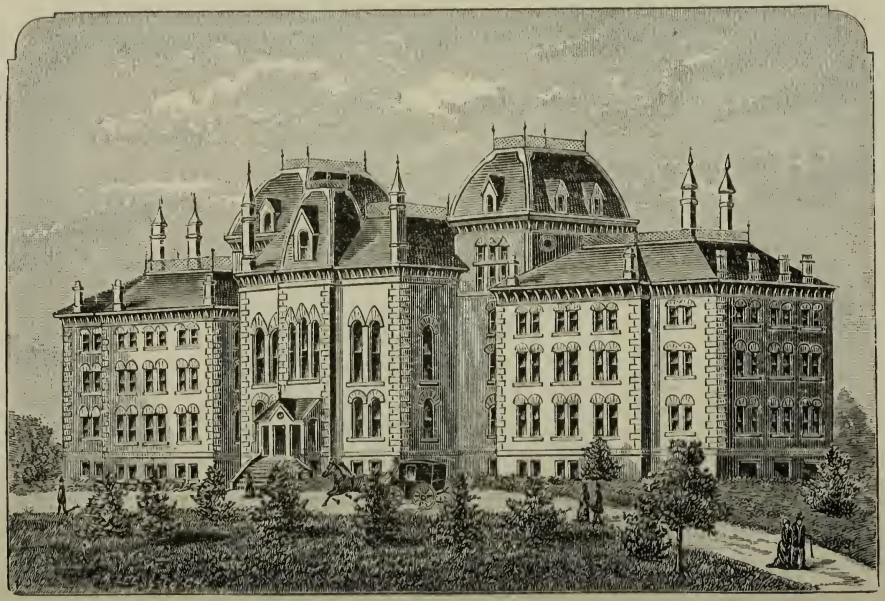
CATALOGUE

OF THE

DEPARTMENT OF PHARMACY,

FOR THE COLLEGIATE YEAR 1886-7.

TOPEKA:
KANSAS PUBLISHING HOUSE: T. D. THACHER, STATE PRINTER.
1887.



UNIVERSITY OF KANSAS—MAIN BUILDING.

THE UNIVERSITY OF KANSAS.

CATALOGUE

OF THE

DEPARTMENT OF PHARMACY,

FOR THE COLLEGIATE YEAR 1886-7.

TOPEKA:
KANSAS PUBLISHING HOUSE: T. D. THACHER, STATE PRINTER.
1887.

ANNOUNCEMENTS FOR 1887-8.

The regular meetings of the Board of Regents are held on the second Tuesday of April and on the third Tuesday of November.

1887.

Sept. 7, Wednesday — First term begins.

Sept. 7 and 8, Wednesday and Thursday — Examination and classification of candidates for admission.

Sept. 9, Friday — General assembly of students and annual address in University Hall, at 10 o'clock A. M.

Nov. 10, Thursday — Second half-term begins.

Nov. —, Thursday and Friday — Thanksgiving Holidays.

(CHRISTMAS RECESS, SATURDAY, DECEMBER 17, TO MONDAY, JANUARY 2, INCLUSIVE.)

1888.

Jan. 24 to 27, Tuesday to Friday, inclusive — Semi-annual Examinations.

Jan. 30, Monday — Second term begins.

March 29, Thursday — Second half-term begins.

May 28 to 31 — Monday to Thursday, inclusive — Annual Examinations.

June 3, Sunday, 8 P. M. — Baccalaureate Sermon.

June 4, Monday, 10 A. M. — Anniversary Exercises.

June 6, Wednesday, 10 A. M. — Commencement.

(SUMMER VACATION OF THIRTEEN WEEKS.)

ORGANIZATION.

By act of the Legislature at the session of 1885, it was provided as follows:

"*Be it enacted by the Legislature of the State of Kansas*, That the Board of Regents of the State University be directed to establish, without delay, a chair of Pharmacy in said institution."

It was further enacted at the same session of the Legislature that—

"The Board of Regents of the State University shall appoint five registered pharmacists, who shall hold office for the term of four years, to conduct the examination of all graduates in pharmacy, and sign the certificates of graduation."

In accordance with this action of the Legislature, the Board of Regents, at its meeting in June, 1885, elected Lucius E. Sayre, Ph. G., of Philadelphia, a practical Pharmacist, and an experienced instructor, late Professor of Pharmacy in the Woman's Medical College, and Instructor in Materia Medica in the Philadelphia College of Pharmacy, and author of "Organic Materia Medica and Pharmacal Botany," as Professor of Pharmacy, and ordered the organization of the department at the beginning of the fall term, September 9th, 1885. At a subsequent meeting, the Board of Examiners in Pharmacy was appointed. The names of the members of this Board will be found on another page.

THE UNIVERSITY OF KANSAS.

DEPARTMENT OF PHARMACY.

BOARD OF REGENTS.

Hon. CHAS. S. GLEED	Topeka	Term expires	1890
Hon. C. R. MITCHELL	Geuda Springs	" "	1890
Hon. M. P. SIMPSON	McPherson	" "	1889
Hon. A. G. OTIS	Atchison	" "	1889
Prof. F. A. FITZPATRICK	Leavenworth	" "	1888
Hon. C. W. SMITH	Stockton	" "	1888

Rev. J. A. LIPPINCOTT, D. D., *Chancellor*, ex-officio member of the Board.

OFFICERS OF THE BOARD.

J. A. LIPPINCOTT	*President*, ex officio.
F. A. FITZPATRICK	*Vice President.*
C. S. GLEED	*Secretary.*
W. F. MARCH	*Treasurer.*
C. R. MITCHELL	*Auditor.*
CARRIE M. WATSON	*Librarian.*
W. J. HAUGHAWOUT	*General Agent for University Lands.*
W. M. HUNT	*Clerk and Book-keeper.*
EBEN FRANCIS CROCKER	*Supt. of Buildings and Grounds.*

BOARD OF EXAMINERS IN PHARMACY.

R. J. BROWN, Leavenworth. B. W. ALDRICH, Wichita.
ARTHUR E. BARNES, Topeka. GEORGE LEIS, Lawrence.
WILLIAM C. McPIKE, Atchison.

OFFICERS OF THE BOARD.

R. J. BROWN, *President.*
ARTHUR E. BARNES, *Secretary.*

FACULTY.

J. A. LIPPINCOTT, PRESIDENT.

L. E. SAYRE, DEAN,
Pharmacy, and Materia Medica.

F. H. SNOW,
Botany and Physiology.

D. H. ROBINSON,
Latin.

E. H. S. BAILEY,
Chemistry and Toxicology.

E. L. NICHOLS,
Physics.

L. L. DYCHE,
Assistant in Natural History.

STUDENTS.

SENIOR PHARMACISTS.

Applebaugh, Harry Perry,	*Minneapolis.*
Dailey, Charles C.,	*Salina.*
Deford, John Henry,	*Ottawa.*
Dick, William Scott,	*Lawrence.*
Griffith, James Ellsworth,	*Eureka.*
Highbargin, Claude Britton,	*Lawrence.*
Hoadley, Clarence Remson,	*Lawrence.*
Lindley, Corydon Endsley,	*Lawrence.*
Lindsay, Samuel Watson,	*Garnett.*
McBride, William Ferguson,	*Lawrence.*
O'Donnell, Martin,	*Wetmore.*
Prentiss, Frank,	*Lawrence.*

Sexton, Charles Loyal,	*Los Angeles, Cal.*
Smith, Andrew Jackson,	*Summit.*
Wood, Thomas Herbert,	*Lawrence.*
Wulfekuhler, Albert Frederic,	*Leavenworth.*

Seniors, 16.

JUNIOR PHARMACISTS.

Abbey, Frank Lincoln,	*Newton.*
Adams, Charles Edwin,	*Cameron, Mo.*
Brown, William Pierson,	*Leavenworth.*
Bunn, Ernest Ambrose,	*Celina, O.*
Daily, Charles C.,	*Salina.*
Ellvin, Olaf Stephen,	*Marquette.*
Gillispie, Henry Robert,	*Hiawatha.*
Herrold, Herbert M.,	*Leavenworth.*
Hill, Bradford L.,	*Scandia.*
Highbargin, Claude Britton,	*Lawrence.*
Howard, Daisy Belle,	*Lawrence.*
Himoe, Ernest,	*Lawrence.*
McLaren, George,	*Minneapolis.*
Myers, Carvosso O.,	*Centralia.*
McClure, Robert James,	*Lawrence.*
Prentiss, Frank,	*Lawrence.*
Rankin, Ernest R.,	*Lawrence.*
Rice, Mary Antoinette,	*Lawrence.*
Shane, Daniel E.,	*Junction City.*
Shaw, James D.,	*Oskaloosa.*
Spencer, Charles Borden,	*Lawrence.*
Topping, Arthur Ellsworth,	*Sedgwick.*
Wallace, Frank Brisben,	*Abilene.*
Weida, George Francis,	*Allentown, Pa.*

Juniors, 24.

DEPARTMENT OF PHARMACY.

TERMS OF ADMISSION.

The candidate should be at least sixteen years of age, and must pass a satisfactory examination in the following studies:

1. Arithmetic.
2. History of the United States.
3. Geography, Descriptive and Physical.
4. English Grammar and Composition.
5. Constitution of the United States.*

ADMISSION BY CERTIFICATE.

Graduates of *accredited High Schools* of the State are admitted without examination, on presentation of diploma, or of an official certificate of such graduation. Principals of private schools and academies, and of the public High and Grammar Schools of the State, whose work is known and acceptable to the Faculty may, by correspondence with the Chancellor, arrange for *home examinations* upon the subjects (or any of them) which are required for admission to the School of Pharmacy. These home examinations may also include any of the studies of the sub-Freshman class in collegiate course.

Blank forms for certificates of admission will be furnished such teachers as desire them. In all cases arrangements should be made in advance, and the certificates must be approved by the Professor in charge of the subjects covered by them. A *partial* certificate will be received, but in such cases the student must pass the usual examinations upon the subjects not included in the certificate.

In all cases, if the first term's work in the University develop the fact that the student's preparation has been imperfect, the right of the professor in charge is reserved to require further and satisfactory examination.

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*A knowledge of Algebra and Geometry is also *recommended*. The student of Pharmacy who lacks a thorough mastery of elementary branches labors under serious disadvantages. Students of Pharmacy will be admitted, without additional charge, to any of the sub-Freshman or Collegiate classes.

COURSE OF STUDY.

JUNIOR PHARMACISTS.

FIRST TERM.

Materia Medica, twice a week.
Pharmacy, three times a week.
Physics.
Latin.
Chemical Arithmetic, one-fifth term.

SECOND TERM.

Materia Medica.
Chemistry, half-term (*a*).
Botany, half-term (*b*).
Physics, three times a week.
Laboratory Practice in Pharmacy.
Crystallography, twice a week.
Laboratory Practice in Physics, one afternoon a week.

SENIOR PHARMACISTS.

FIRST TERM.

Pharmacy and Laboratory Practice.
Qualitative Analysis, half-term.
Physiology, half-term.
Laboratory Practice in Physiological Chemistry.
Volumetric Analysis and Gravimetric Analysis, half-term.
Structural Botany, half-term.

SECOND TERM.

Materia Medica, half-term.
Organic Chemistry, half-term.
Toxicology, half-term.
Microscopy, (section-cutting and mounting,) half-term.
Laboratory Practice in Pharmacy.
Preparation of Thesis.

PHARMACY.

JUNIOR COURSE.

The instruction to Junior students in practical pharmacy and pharmaceutical chemistry consists of lectures and laboratory practice. The course is based upon the United States Pharmacopœia. A comparison

of this standard with the pharmacopœias used in different countries is made, followed by a few lectures preparatory to actual laboratory work and dispensing. The study of specific gravity and of different systems of weights and measures receives attention. The operations in pharmacy are then divided in such manner as to form a graded course of study. The simplest treatment to which the drug is subjected during the process of preparation for manipulation, dispensing and administration is first considered. For example: The process of pulverization, the methods of grinding, powdering and sifting are given, both in the ordinary operations of the store and in those of the manufacturer. Subsequently, by successive steps, are taken up the higher forms of pharmaceutical work, such as solution, decantation, elutriation, filtration. Next in order follow such processes as maceration, infusion, percolation; subsequently, processes requiring heat, such as evaporation, distillation, and sublimation; finally, precipitation, crystallization, and granulation. The latter part of the course is devoted to the consideration of inorganic substances used in medicine. These are classified according to their chemical relations, as follows: The elementary substances, such as chlorine, bromine, and iodine; the alkalies and alkaline earths; and finally, the salts of the metals, such as iron, zinc, lead, mercury, etc. The presentation of this portion of the course is limited to the pharmaceutical bearings of these substances entirely, referring at the same time, without needless repetition, to the knowledge gained in the lectures upon general chemistry. Such pharmaceutical preparations are studied in the course as require no great amount of chemical skill in their preparation, and the practical work in the laboratory has a like limitation. Prescription-reading and compounding are also studied from original prescriptions of different physicians from various parts of the United States. Three thousand such prescriptions are now on hand in the department, and others will be added from time to time. The advantage of such practice under competent instruction must at once be apparent. Phyto-chemistry, or plant analysis, and the higher forms of pharmaceutical chemistry, are merely referred to as a preparation for the Senior course.

SENIOR COURSE.

A review of the important features of the Junior course is rehearsed at the opening of the term, followed by lectures devoted more particularly to pharmaceutical chemistry. The subsequent lectures embrace a study of the pharmacopœial preparations from a more scientific point of view. These are classified in such manner as will enable the student to study the chemical constituents of each drug, and bring out the bearing these have upon the manufacture of medicinal preparations. Each drug is considered individually, but drugs and their preparations are so grouped as to introduce a graded study of a pharmaceutical nature. For instance, those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other.

Subsequently the organic substances obtained from the animal kingdom are considered. Following this, a review is made of the pharmacopœia in the important methods of manufacture and examination of inorganic chemicals, and a consideration of the methods of assaying and plant analysis.

While the drugs and preparations of the U. S. P. claim principal place as the more important, due attention is paid to non-officinal materia medica.

MATERIA MEDICA.

JUNIOR COURSE.

The instruction to this class consists of lectures and recitations. A general survey of the subject is taken; the geographical origin, medicinal properties and constituents of drugs from the three kingdoms are presented; the various methods of grouping them in the study of materia medica, adopted by physicians, pharmacists and chemists, will be brought out. In connection with the study of drugs from the vegetable kingdom, considerable attention will be paid to the medicinal plants of Kansas; at the same time there will be given laboratory practice in Botany with Prof. Snow. (See page 18.) Preparatory to the Senior course, a few weeks are given to the physical and structural characteristics of drugs.

SENIOR COURSE.

The lectures to Senior students in this department are devoted more specially to the physical and structural characteristics of drugs. The classification adopted presents, in the first place, the roots and underground stems. These are then subdivided according to their relations as to special physical properties, those of a more cellular structure being placed in the one class, those of a fibrous and woody character in another. These, with intermediate forms, are so subdivided and arranged that their characteristics may be the more readily studied. Adulterations receive due consideration. The subject of pharmaco-dynamics, including the antidotes for such vegetable substances as possess poisonous properties, is presented. No effort is spared to make the student so familiar with the officinal and important drugs, that his recognition of them will be instantaneous and reliable.

BOTANY.

The instruction in Botany is the same as that given to Freshmen and Sophomores in the collegiate department. Two weeks are devoted to the review of a text-book, for the purpose of fixing the elementary principles of the science, including the necessary botanical nomencla-

ture. Eight weeks are then devoted to laboratory work, in which the student gives his chief attention to the wild phænogamous plants of the surrounding region. Accuracy of observation and skill in description are thus acquired, making the correct classification of plants a comparatively easy undertaking. In connection with this part of the work, each student is required to prepare a small herbarium of at least forty species of plants, special prominence being given to the medicinal species.

In the second year, a half-term of ten weeks is devoted to advanced work in structural botany. By means of the compound microscope the student is made acquainted with the internal structure of plants of all orders.

CHEMISTRY.

In the first term of the Junior course the *elements* of the science are taught, to familiarize the student with the nomenclature, the simpler chemical formulæ and reactions, and the mutual relations of weights to volumes, etc. The book used is Coit's Chemical Arithmetic. Recitations and lectures daily, 25 exercises.

During the second term students receive instruction daily for ten weeks in the chemistry of the metals and of the more common non-metallic substances. An opportunity is also afforded for laboratory practice one afternoon per week. Particular attention is given to a study of the methods of generating the more common gases and to a study of their properties. A careful study is also made of tests for the most familiar elements and their compounds.

In the first term of the Senior year the last ten weeks are devoted to Qualitative Analysis. Each student is provided with apparatus and chemicals, and is expected to work in the laboratory, following a systematic course of analysis. He thus becomes familiar with methods of manipulation, and is able to test all ordinary compounds and determine their constituents. At the close of the course the examination is so conducted that he must demonstrate his ability to actually analyze an unknown mixture.

Subsequently three months are devoted to the study of Organic Chemistry, special attention being given to officinal preparations. The aim is to teach the theory of the formation, structure and relations of organic bodies rather than the storing of the mind with complicated symbols and reactions.

Toxicology occupies the last part of the second term of the Senior year. Instruction is given by lectures. Laboratory practice is an important part of this course, the facts of the text-books being verified by actual experiments on the lower animals and on organic tissue.

PHYSICS.

The course in Physics includes class-room work daily during the first term, and three times a week during the second term of Junior year, with laboratory practice one afternoon a week throughout the year. The class-room work consists of lectures and recitations, and of experimental demonstrations by the instructor. In the laboratory each member of the class verifies the simpler physical laws by actual experiment. Especial attention is also paid to the theory and use of the analytical balance, the construction and use of hydrometers, the comparison of thermometers, to determination of density and of melting and boiling points, and to such other physical manipulations as are of direct value to the pharmacist. The student also devotes considerable time to practical work with the spectroscope, microscope and polariscope.

Recent liberal legislative appropriations have furnished the Department of Physics with a very complete set of apparatus for demonstration, and many valuable instruments of precision.

During the second term a thorough course in practical Crystallography is offered to the Junior class in Pharmacy.

MISCELLANEOUS INFORMATION.

RECITATIONS.

Students in Pharmacy will recite with collegiate classes in Botany, Physics, Chemistry, and other subjects which are common to the two departments. Recitations and lectures occupy the morning hours, from 9 A. M. to 1 P. M. Laboratory practice, Qualitative and Blow-pipe Analysis, Microscopy, etc., will, for the most part, be assigned to the afternoon.

REQUIREMENTS FOR GRADUATION.

The degree of Ph. G. (Graduate in Pharmacy) will be given to such students as complete the above course, and pass a satisfactory examination upon the same in accordance with the law establishing the department: *Provided*, That no degree shall be conferred until the candidate presents satisfactory testimonials showing that he has had two years of *practical experience* in Pharmacy. This *apprenticeship* must be had in the actual drug business, and may either *precede* or *follow* the course of study prescribed in the University. It is, however, recommended as in every way more desirable, that the practical work herein required shall precede the theoretical work of the class-room and of the University laboratories.

EXAMINATIONS.

Examinations will be held at the end of each term upon the work of that term. These term examinations are held by the Faculty, and

are generally written. At the end of the course, examinations will be held by the Faculty in connection with the State Board of Examiners in Pharmacy, in such manner as may hereafter be prescribed.

FEES.

A contingent fee of ten dollars per annum is required of *all* students of the University. In addition to this, members of the class in Pharmacy or Materia Medica are required to pay fifteen dollars per annum. This fee of twenty-five dollars is payable in advance, and no part of it is to be refunded. A graduating fee of five dollars is required.

A deposit of from three to eight dollars per term is required, to cover loss and breakage in the laboratories and use of material. At the end of each term all the material returned in good order will be credited to the student, and any balance remaining will be refunded.

Students in Pharmacy will have the privileges of the University library, and of the various collections in Zoölogy and Botany, and all advantages possessed by other students in the University.

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Board in families, including rooms, lights and fuel, is furnished at an average cost of $4 per week. Some persons who furnish plain rooms, and good plain food, receive boarders at $3.50 or even $3 per week. Students who require extra accommodations pay higher rates. Day board in private families costs about $3 per week.

Day board in clubs varies according to the economy practiced, from $1.50 to $2.25 per week. On this plan, a company of students appoint a steward or a committee to arrange terms with a competent housekeeper, to buy provisions as needed, to keep a list of rooms for rent in the vicinity, and to collect from the membership the estimated cost in advance for each week. These students generally furnish their own rooms, and provide lights, fuel, etc. An unfurnished room rents for about $2 per month; furnished room, for from $5 to $10 per month.

Any further information will be freely given on application. Address the Dean of the Department, or the Chancellor of the University, J. A. Lippincott, Lawrence, Kansas.

PREPARATORY MEDICAL COURSE.

The charter of the University authorizes and requires the establishment of a Department of Medicine. It is hoped that this may be accomplished in the near future. As leading to it, a course of studies nearly related to the departments of Pharmacy, Chemistry, and Natural History, and including Materia Medica, Human Physiology, Comparative Anatomy (dissections), etc., has been arranged. This course is accepted by all the leading medical colleges of the West as the first year of a three-years course, and students passing a satisfactory examination here will be admitted to the second year in those colleges, on certificate of the Faculty of this University.

A metallurgical cabinet, a pharmaceutical collection constantly increasing, a suite of specimens illustrative of chemistry applied to the arts, and a collection of manufactured chemicals, afford excellent facilities for practical study in this department.

ADMISSION.

Students will be admitted to the Preparatory Medical Course who are ready for admission to the Freshman class in all English studies.

COURSE OF STUDIES.

FIRST TERM.

Chemistry.
Laboratory Practice in Analytical Chemistry.
Human Physiology, half-term.
Comparative Anatomy (dissections, etc.), half-term.

SECOND TERM.

Chemistry.
Botany.
Physiological Chemistry.
Toxicology, half-term.
Materia Medica.

A fee of twenty-five dollars, payable in advance, is required of all students in this course. No part of the fee is to be refunded.

SCHEDULE OF RECITATION HOURS FOR 1887-88.

JUNIOR COURSE.

	9.	10.	11.	12.	P. M.
FIRST TERM.....	Chemical Arithmetic (*a*).	Physics.	Pharmacy 2. Materia Medica 3.	Latin.	Laboratory Practice.
SECOND TERM.....	Pharmacy 3. Materia Medica 2.		Chemistry (*a*). Botany (*b*).	Physics 3. Crystallography 2.	Laboratory Practice in Physics one afternoon per week.

SENIOR COURSE.

FIRST TERM.....	Pharmacy.	Structural Botany (*a*). Qualitative Analysis (*b*).	Physiological Chemistry.	Physiology.	Laboratory Practice.
SECOND TERM.....	Microscopical Examination of Drugs.	Materia Medica (*b*).	Volumetric and gravimetric analysis, and examination of pharmaceutical chemicals.	Organic Chemistry (*a*). Toxicology (*b*).	Laboratory Practice.

CHEMICAL BUILDING—THE UNIVERSITY OF KANSAS.

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